

## WHAT IS CLAIMED IS:

1. A conveyor system for use in a vacuum processing apparatus, comprising:

a loader provided with a convey device for conveying structures;

a vacuum loader provided with a convey chamber, plural vacuum processing chambers and a sole robot system installed in the convey chamber, for conveying structures to be processed; and

double lock chambers for connecting said structure loader and said vacuum loader,

wherein the sole robot system is provided with an arm extendable into the double lock chambers and the plural vacuum processing chambers, and said sole robot system conveys structures from either double lock chamber to the convey chamber and then any of the plural vacuum processing chambers one by one.

2. A conveyor system for use in a vacuum processing apparatus, comprising:

a cassette mount unit for receiving plural structures to be processed;

a conveyor loader having a first robot system for conveying structures to be processed;

a vacuum loader provided with a convey chamber, plural vacuum processing chambers and a sole robot system

installed in said convey chamber, for conveying said structures to be processed; and

double lock chambers for connecting said conveyor loader and said vacuum loader, disposed separately and adjacently each other,

wherein the robot system is provided with an arm extendable into the double lock chambers and the plural vacuum processing chambers, and said sole robot system conveys said structures from either double lock chamber to said convey chamber and then any of the plural vacuum processing chambers one by one.

3. A conveyor system for use in a vacuum processing apparatus according to claim 2, wherein said double lock chambers are a load lock chamber for receiving said structures to be processed from said first robot system and an unload lock chamber for delivering structures which have been processed, to said first robot system.

4. A conveyor system for use in a vacuum processing apparatus according to claim 3, wherein said conveyor loader is an atmospheric conveyor loader which is provided with a cleaning device.

5. A conveyor system for a vacuum processing apparatus in which a substrate to be processed is processed one by one in plural vacuum processing chambers, comprising:

a receiving structure for receiving said substrate

to be processed, installed exposed to the air;

a first conveyor structure for conveying said substrate to be processed;

a vacuum loader provided with a convey chamber, plural vacuum processing chambers and a sole robot system installed in said convey chamber, for conveying said substrate to be processed;

double lock chambers for connecting said first conveyor structure and said vacuum loader, disposed separately and adjacently each other; and

a second conveyor structure for conveying said substrate to be processed between said double lock chambers and said vacuum processing chambers in a vacuum,

wherein the robot system is provided with an arm extendable into the double lock chambers and the plural vacuum processing chambers, and said second conveyor structure has a sole robot conveying said substrate from either double lock chamber to said convey chamber and then to any of the plural vacuum processing chambers one by one, and opening portions are provided for connecting said vacuum processing chambers to said convey chamber.

6. A conveyor system for use in a vacuum processing apparatus, comprising:

a transfer robot arranged so as to access plural cassettes and plural lock chambers, said plural lock chambers having gate valves directed toward said transfer robot, for connecting said transfer robot and said vacuum loader, the

plural lock chambers being disposed separately and adjacently each other;

a cassette table arranged to direct a wafer takeout port of said plural cassettes toward a side of said transfer robot;

a transfer chamber having plural gate valves which are disposed to enable plural processing chambers to be connected at a surrounding portion with said plural lock chambers; and

a sole vacuum transfer robot provided in said transfer chamber for conveying a substrate from either double lock chambers to said transfer chamber and then any of the plural vacuum processing chambers one by one.

7. A conveyor system for use in a vacuum processing apparatus, comprising:

a transfer robot arranged so as to access plural cassettes and plural lock chambers, traveling on a track provided in a conveyor structure in a front row of said plural lock chambers, said plural lock chambers having gate valves directed toward said transfer robot, for connecting said transfer robot and a vacuum loader, disposed in a front of said vacuum loader;

a cassette table arranged to direct a wafer takeout port of said plural cassettes toward a side of said transfer robot;

a transfer chamber having plural gate valves which are disposed to enable plural processing chambers to be

connected at a surrounding portion with said plural lock chambers; and

a sole vacuum transfer robot provided in said transfer chamber for conveying said substrate from any of said plural lock chambers to said transfer chamber and then any of said plural processing chambers one by one.

8. A vacuum processing apparatus, comprising:

at least one cassette holder for storing a wafer which is to be stored in a gas atmosphere;

double wafer locking structures for holding the wafer in a gas atmosphere during a first time period and in a vacuum during a second time period, disposed separately and adjacently each other;

evacuating structure for evacuating said double wafer locking structures;

gas introduction structure for introducing a gas into said double wafer locking structures;

a first transfer structure for transferring the wafer between said at least one cassette holder and said double wafer locking structures, being under a gas atmosphere;

a plurality of vacuum processing chambers for one by one treating the wafer, which is to be processed in a vacuum; and

a second transfer structure for transferring the wafer between said double wafer locking structures and at least one of the plurality of vacuum processing chambers, provided with a sole robot conveying the wafer to be processed

and which has been processed, one by one.

9. A base frame for vacuum processing, comprising:

a holder for two cassettes, for storing a plurality of wafers which are to be stored in an atmosphere in front of a vacuum loader;

double wafer locking structures for holding the wafers in a gas atmosphere during a first time period and in a vacuum during a second time period, disposed separately and adjacently each other, disposed in a front row of the double wafer locking structures;

evacuating structure for evacuating said double wafer locking structures;

gas introduction structure for introducing a gas into said double wafer locking structures;

a first transfer structure for transferring the wafer between said holder for two cassettes and said double wafer locking structures, being under a gas atmosphere;

a plurality of vacuum processing chambers for one by one treating the wafers, which are to be processed in a vacuum; and

a second transfer structure for transferring the wafers between said double wafer locking structures and at least one of the plurality of vacuum processing chambers, provided with a sole robot for conveying the wafer to be processed and which has been processed, one by one.

10. A base frame for a vacuum processing apparatus,

comprising:

double wafer locking structures for holding a wafer in a gas atmosphere during a first time period and in a vacuum during a second time period;

a first transfer structure for transferring the wafer between a cassette holder which is exposed to the air and said double wafer loading structures while said double wafer locking structures are under a gas atmosphere; and

a second transfer structure provided with a sole robot conveying the wafer to be processed and which has been processed, for transferring the wafer between said double wafer locking structures and plural vacuum processing chambers one by one,

wherein the sole robot is provided with an arm extendable into the double lock chambers and the plural vacuum processing chambers.

11. A base frame for a vacuum processing apparatus, comprising:

a holder for two cassettes, for storing a plurality of wafers which are to be stored in an atmosphere;

double wafer locking chambers disposed separately and adjacently each other;

a first robot for transferring the wafers between said holder for two cassettes and said double wafer loading chambers;

a second robot disposed in a convey chamber of a vacuum loader, conveying the wafers to be processed and to

have been processed, for transferring the wafers between said double wafer locking chambers and plural vacuum processing chambers of said vacuum loader one by one.